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## LEPTOGENESIS IN MINIMAL SUPERSYMMTRY STANDARD MODEL

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## ABSTRACT

We study leptogenesis in the minimal supersymmetric standard model and compare with the non-supersymmetric Fukugita-Yanagida scenario. We identify that the picture of leptogenesis is qualitatively quite different from the non-supersymmetric case, but it turns out that, quantitatively, they are very similar. The lepton number asymmetries in fermions and scalars do not equilibrate, and are related vis a non-vanishing gaugino chemical potential. The recent great discovery of this century, the detection of Higgs bosons mass of 126 Ge V and reactor neutrino mixing angle non-zero $\theta_{13}$ make all the more plausible for leptogenesis. Over-production of gravitinos in SUSY or MSSM is a big hindrance in leptogenesis. Besides inflation models, there are three well-known approaches, "soft leptogenesis", "resonant leptogenesis" and "non-thermal leptogenesis" to overcome gravitinos problem. We investigate the last one. We also discuss the different results present in the literature and compare with our results. Inflaton mass needed to produce the observe baryon asymmetry  $6.5 \times 10^{-10}$  GeV is found to be  $5.60 \times 10^{12}$  GeV corresponding to the reheating temperature  $8.87 \times 10^6$  GeV.

KEYWORDS: Leptogenesis, MSSM, Inflaton Mass